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MICROTEACHING IN TEACHER EDUCATION

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By

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FOREWORD

The purpose of this monograph is to disseminate the conceptual thinking and some empirical findings that have resulted on account of a planned innovation in the area of Teacher Education.

In the year 1972, the Centre of Advanced Study in Education planned to undertake a study in the area of student teaching with a view to seeing the applicability of a new teacher training approach—microteaching. It was decided to restrict the scope of the study to a smaller group of student teachers and also to only a few teaching skills. This was done in view of limited resources of staff and lack of materials like CCTV and VTR. This innovation provided adequate insight and the needed experience in developing the microteaching approach in Indian conditions. Enriched by this, the Centre of Advanced Study in Education has undertaken this work on a larger scale during the year 1973-74.

This report of a pioneering study will stimulate serious thinking amongst all those who are concerned with improving Teacher Education. This monograph speaks of a planned attempt to cover the concept of microteaching and an overview of related literature. It has been suggested in the monograph that microteaching as an approach is feasible even in Indian conditions.

It is strongly recommended that this idea may be tried with other teaching skills in teacher training institutions in the country. Let it be recognised that a silent revolution is underway aiming at changing the entire concept of teacher training. Our task is to strengthen it.

M. B. Buch

PREFACE

Microteaching, a teacher training technique has been undertaken by the Centre of Advanced Study in Education, Faculty of Education and Psychology, M. S. University of Baroda, Baroda, as a part of comprehensive programme of 'research and development' in the area of Teacher Behaviour. The concept of 'microteaching', developed at Stanford University and its modified and more developed form 'Mincourse', at Far West Laboratory for Educational Research and Development, Berkeley, California, have been emulative enough to be tested under Indian conditions.

The idea behind bringing out this monograph is to highlight the salient features of Microteaching, to acquaint the reader with the related studies conducted throughout the world and to disseminate the findings and observations of the empirical studies done in the CASE. This monograph aims at providing an understanding about the nature, importance and feasibility of Microteaching as a technique of teacher training and a potential research tool in Teacher Education. It will provide a base for further research in this area and many more researches completed and undertaken by L. P. Singh, N. A. Vaze and Krishan Kumar Sharma, Teacher Fellows of CASE and others in India, will throw light on various other aspects of Microteaching.

This work could have not seen the light of the day without the singular leadership and elevating inspiration of Dr. M. B. Buch, Head, CASE, M. S. University of Baroda, Baroda.

We are extremely grateful to our friends—Smt. S. Kalyanpurkar, Kum. M. S. Padma and Shri L. P. Singh who were closely associated in this project.

We are highly thankful to Shri Krishan Kumar Sharma, Shri N. A. Vaze and Kum. Lalitha who have been kind enough for going through the manuscript and proof-reading very critically.

January 18, 1974

B.K.P.

M.M.S.

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CHAPTER I

INTRODUCTION

Teacher education programme in India is on the anvil. It has been subjected to harsh criticism by educational thinkers. It has been handled unimaginatively by educational administrators. It has been treated in a very inconsistent way by educational planners. Besides, the profession of teacher educators has not been able to put up a strong defence to place teacher education programme on sound props. Inspite of this sorry state of affairs, individual institutions have undertaken innovative programmes in the preparation of teachers. Joshi (1972) undertook a systematic study of innovations in teacher education programmes at Udaipur. Earlier, the Department of Teacher Education of the National Council of Educational Research and Training made a compilation of innovations in colleges of education. Buch (1967) studied innovative practices in the in-service education of teachers. These studies have brought to light the efforts to improve teacher education in the country. They also indicate the concern of teacher educators to develop new practices to reshape teacher education.

Student Teaching Programme

Student teaching programme constitutes the heart of a programme of teacher education. To the extent that this programme is well designed and well implemented, teacher preparation will be more effective. A wide variety of practices prevail in this area amongst institutions of teacher education. But these practices are limited mostly to the organisational aspects of student teaching. The Regional Colleges of Education of the NCERT developed the practices of co-operating teachers and internship to meet the problems of teachers with different languages. These innovative practices have stimulated a number of researchers to develop and try out new practices in student teaching in the country. Yet, this aspect of teacher preparation has remained weak and this weakness has been responsible for the criticism, the teacher education faces from the schools and the administrators.

Referring to the traditional teacher education programme Perlberg (1972) said, "The traditional teacher education programme consists of two main elements: theoretical courses and practice teaching. Theoretical courses, covering the philosophical, historical and psychological foundations of education and teaching methodology, are mainly verbal, tend to be abstract, and are sometimes vague. Consequently, they affect cognitive and attitudinal, rather than behavioural changes in teachers. With regard to supervised student teaching, it is generally assumed that during this period the student teacher will develop proficiency in basic teaching skills and classroom management, and with it, the confidence in his new role. In practice, however, in-service supervision of student teachers and teachers tends to be very limited and superficial. The supervision lacks the objective feedback on performance, essential both to motivating and directing behavioural modifications. The regular classroom situation neither encourages nor allows the student an opportunity to test alternative methods and style essential for developing effective teaching strategies."

Thus, not only improvements are required in theoretical aspects of the curriculum of teacher education but also in case of skills in teaching approach.

The present day teaching practice programme has been criticised by Borg *et al.* (1970) on account of its four defects, namely: (i) emphasis is on teaching, rather than on doing; (ii) instruction is general, rather than specific; (iii) effective models are not provided; (iv) effective feedback is not provided. After a few lectures on the methods of teaching and demonstration lessons by the method masters, the pupil teacher is asked to teach. But by this time he might not have learnt the subtle skills of teaching. He passes through a tense state of mind and faces many failures and frustrations. Secondly, looking to the skills in teaching programmes of teacher education from the point of supervisors, the situation appears to be still more gloomy. The supervisors have not been exposed to new techniques of training in developing the skills, improved and scientific methods of observation and effective modes of providing feedback. Thus, the supervisors have neither confidence nor training to try innovations in the area of student teaching programme. Thirdly, the teachers and headmasters of experimental schools do not pay serious attention to the student teaching programme. They consider it an undesirable taxation upon the school time. They have a genuine grievance against this programme because a novice student teacher is spoiling the time and discipline of the school. What is wrong with all this? Who is responsible for it? Who should find a solution to it? These are research questions for teacher educators, educational researchers and administrators. In this context, relevance of the present day teacher training programme is often questioned. The same fact is revealed by several surveys about student teaching. Palsane and Ghanchi (1967) surveyed the student teaching programme of sixty-two colleges. The findings of their study are: (i) the number of lessons to be given by a trainee is fixed arbitrarily and not on the basis of individual needs and abilities; (ii) there is a lack of adequate orientation programme for initiating student teaching; (iii) the trainees do not get practice in teaching continuous units and they have no scope to develop dynamism, initiative and resourcefulness as teachers; (iv) the trainees lack in opportunities for responsible planning through co-operation with pupils, teachers and supervisors, (v) the training colleges and schools are not closer and co-operative in planning the programme for student teachers; (vi) there is absence of block-practice and want of an internship experience; (vii) the assessment of student teachers is not continuous and integrated which could carry the seeds of further progress; and (viii) the student teaching programmes need to be studied objectively and reoriented in all the aspects.

These findings underline the need for trying out new ideas in student teaching programme. A similar need was also felt by educators outside the country. Allen and his associates at the University of Stanford found that graduate teachers showed resistance to practice teaching programme on account of its in-built difficulties and defects. These felt difficulties led to the formal germination of the idea of microteaching.

Microteaching

Microteaching has been described as a system of controlled practice that makes it possible to concentrate on specific teaching behaviour and to practise teaching under controlled conditions; competence is acquired in one skill before proceeding to another skill. Further, microteaching is a scaled down process in terms of class size, length of the lesson, teaching time, and teaching complexity. There is, however, no one definition of microteaching as it is a concept which is certainly in the process of development.

Peck and Tucker (1973) state that microteaching is a combination of a conceptual system for identifying precisely specified teaching skills with the use of video-tape feedback to facilitate growth in these teaching skills. Similarly, McCollum and La Due (1970) state that microteaching is an opportunity to gain classroom capabilities and expertise before the student teacher starts entering the macroteaching situation. Microteaching is essentially meant for either pre-service or in-service teachers to develop and improve upon their instructional skills.

Although originated in 1963 and developed very slowly, microteaching has its own heading in Education Index of 1967. Ward (1969) in a "Survey of microteaching in secondary education programmes of all NCATE accredited colleges and universities," was able to report that out of 442 as many as 141 NCATE colleges and universities were using microteaching in some way or the other. In fifty cases microteaching was used for in-service training.

Besides the institutions of U.S.A., some experiments with microteaching have been conducted in U.K. Stirling University has a five year grant for microteaching work from the Leverhulme Trust (Perrot and Duthie, 1969). The new University of Ulster uses microteaching extensively in its teacher education programme (McAleese and Unwin, 1971). At Exeter University, Wragg (1971) has been studying the influence of feedback on teachers' performance using microteaching.

Microteaching is relatively a new departure in teacher training. Meier (1968) has analysed the concept of microteaching and mentioned the following underlying principles. He used the term learner for student teacher.

(i) Capacities of the learner must be considered when a decision of what to teach is made.

(ii) The learner must be motivated intrinsically. " To improve myself" should come from within; it depends upon the difference between his ideal self-concept as a teacher and his recorded real teaching behaviour.

(iii) Microteaching critiques must maintain balance in diagnosing weaknesses of the student teacher and reinforcement of desirable teaching behaviours. This brings the principle which states that goals are to be realistically set.

(iv) The personal history of a trainee may affect his ability to learn or change a particular behaviour pattern. As microteaching has short duration of time, it enables only one element of modifiable behaviour to be worked on at a time. Thus, a trainee is not overwhelmed with too large a number of modifications to be made at the same time.

(v) Active participation by the student is necessary in order to modify his behaviour substantially.

(vi) Knowledge and information about one's own performance aids the learner. Transfer will be better if the learner sees the relationship himself.

(vii) Transfer is maximised due to immediate feedback which informs the trainee of his defective practices before they become habitual.

(viii) Spaced distributive recalls are advantageous as learning and maintenance of a skill are best accomplished through spaced practice over a period of time.

During a course of a microlesson the teacher's behaviour is recorded either by instruments like video-tape, tape recorder or by any other technique of observation. The selection of recording instrument depends on the objectives and the situation of the study. For example, if the objective is to examine the verbal behaviour of the teacher and the pupils, the use of verbal interaction analysis category system is desirable. If the goal is to examine, the nonverbal behaviour of the teacher and the pupils, the use of CCTV or VTR is more appropriate. In the present Indian conditions, the researchers have mostly to depend upon verbal behaviour observation systems.

Before discussing the procedure of microteaching, it will be desirable to know its importance in teacher education.

Importance of Microteaching

Allen and Ryan (1969) have put forward six areas of importance of microteaching. These are as follows :

It is a safe practice : Practice is, of course, a prerequisite for many learning activities. Practice in the normal classroom whether by a student teacher or by an experienced teacher brings with it certain constraints. It is felt that students are there to be skilfully taught, not practised on. Practice must take place within a larger block of time. It must be integrated with the flow of longer lesson. Also the skill or the technique practised must fit in well with the lesson specified for that day. Most important factor, lacking in our classroom teaching, is the limited opportunity for the student teacher to receive feedback for his performance. For the beginning teacher, the task is very difficult. He must get opportunities for safe practice in teaching as other professionals receive. For example, the law student has his moot court, the medical student has his cadaver and his rounds in the clinic, the aircraft pilot has his link trainer and the actor has his closely supervised rehearsals. The beginning student teacher must learn how to teach, amidst the hurly burly of his schedule of classes.

A focussed instrument : An individual teacher trying to improve his performance must identify specific pitfalls in his teaching activities. He can try to improve by means of microtechnique. He can work on specific skills. By enabling the teacher to focus on specific skills, providing immediate feedback from several sources and then allowing him to continue practice, microteaching leads to great strides in the acquisition of teaching skills in a short time.

Developing classrom skills : After a microlesson, the student teacher and the supervisor discuss the lesson keeping in view the purpose of improvement in the next trial. The supervisor helps to direct the behaviour of the student teacher in order to develop some of the following classroom skills of teaching.

(i) Variety of questioning.
(ii) Awareness of verbal and nonverbal behaviour.
(iii) Development of inferences.
(iv) Development of hypotheses.
(v) Development of testing hypotheses.
(vi) Locating and questioning assumptions.
(vii) Creating problematic situation.
(viii) Development of alternate solutions to a problematic situation.
(ix) Handling student responses and reinforcement strategies.

(x) Use of variety of teachniques for classroom communication such as roleplaying, lecturing, recording on tapes, etc.

A vehicle for continuous training : After a few years in the classroom, the teachers reach a professional plateau and their development as teachers tends to level off. This is true even of the best teachers because they have very little initiative to improve since their competence is already recognised. One of the reasons for the lack of professional development, is that teachers have few vehicles for continued growth. Microteaching represents a partial solution to this problem. If the teacher had a microteaching clinic as one of the professional resources like workshops and professional libraries available to them, they could use it to improve upon their instructional skills and to try out new curricular materials.

A new approach to supervision : Microteaching can provide both a good setting for and a positive approach to supervision. The approach is entirely non-evaluative. The stress is on instructional help to the teacher. In a traditional lesson, the supervisor normally sits in the rear of the classroom, writes notes and comments and criticises the performance of the student teacher. For this the student teacher sometimes becomes sensitive. A microteaching clinic overcomes this limitation as the supervisor helps the student teacher to improve upon in the next reteach session. The number of students, time and teaching unit are reduced which lessen the pressure of work upon the student teacher. Microteaching clinic seems to have a relatively relaxed environment. After the lesson, the student teacher gets concrete suggestions from the supervisor on the basis of which he improves his lesson in reteach session.

A research tool : Many aspects of microteaching render it valuable as a research tool. Research in education is very difficult as many uncontrolled variables are involved in teaching learning process. In microteaching situation, the researcher can exercise greater control over variables such as teaching time, content units, students and teaching techniques. Microteaching is ideal for pilot studies. Before starting with large experiments, some problems can be worked out in microteaching setting. Most likely, it is not appropriate for the acquisition of all teaching skills. It will not solve all problems of professional training for teachers. Nevertheless, microteaching can provide the profession with a unique setting of training and for research in teaching.

Before discussing the applications, advantages and disadvantages of microteaching, it is desirable to take into cognizance the teaching skills and the procedure involved in a microlesson.

Teaching Skills

The student teaching, under microteaching settings, would require to analyse the effective teaching behaviour in terms of teaching skills. Priority of these skills can be decided from the discussion by the microteaching staff. The following skills are representative of the teaching skills to be developed in a student teacher. These are general teaching skills that can be applied at many levels, for teaching many different subjects :

(i) Stimulus variation
(ii) Set induction
(iii) Closure
(iv) Silence and nonverbal cues
(v) Reinforcement of student participation
(vi) Fluency in asking questions
(vii) Probing questions
(viii) Higher-order questions
(ix) Divergent questions
(x) Recognising attending behaviour
(xi) Illustrating and use of examples
(xii) Lecturing
(xiii) Planned repetition
(xiv) Completeness of communication
(xv) Using audio-visual aids
(xvi) Teacher liveliness in the classroom

(xvii) Promoting group discussion
(xviii) Teacher explanation

According to the importance and need, a student teacher selects one skill of teaching for a microlesson. A student teacher is oriented with the characteristics of that particular skill. He is then ready to practise it. By conscious practice of one skill rather than the general practice of teaching, he has a greater chance of practising and improving upon that skill. The 'component-skills approach' emphasises the acquisition of one skill at a time. This is particularly helpful to the beginner; it makes the task much less complex. The teacher starts understanding the teaching skill to be learnt; he begins to recognise the behaviours that make up the skill.

The component-skills approach gives the supervisor something specific to work upon. It frees him from a hunt and peck approach to supervision: searching for the teacher's weaknesses and then telling him where he deviated from good practice. The focussed supervision makes it easier to decide what is and what is not good in teaching performance. Another advantage is that the supervisor can selectively reinforce the performance of certain skills and behaviours while ignoring others. It greatly simplifies the training of supervisors.

Procedure of Microlesson: First of all, the trainees are exposed to the theoretical discussion of a particular skill in terms of definition, operational definition, importance of the skill, factors hindering and helping the mastery of the skill. This is followed by demonstrations and modelling. The student teacher observes the particular skill in the model. The selection of unit and grade is made according to the skill in question. Lesson plan is prepared with the help of the method master. Now the microteacher is ready for the first microlesson of that skill.

The supervisor is present in the rear of the room, if possible the lesson is also video-taped or audio-taped. When the trainee has taught for eight minutes, he gets a signal of 'one more minute' from the supervisor. After the lesson, the supervisor gives 'rating forms' to the students (if need be) and the supervisor also fills one for himself. Since the rating forms are familiar to the students, it takes a minute or so. The students after handing over the forms leave the room. With this, the first session—'teach session' is over.

In the meantime, the teacher trainee collects his material and leaves the room for the next trainee. Normally, the supervisor tries to get the trainee to estimate his success with respect to particular skill. Then the trainee moves on to the reports of students and supervisor.

During the second session, discussion—feedback period, the trainee and supervisor centre their discussion on the skill and occasionally on any other item which the trainee is interested in improving. When a video-tape is available, pertinent portion of it can be replayed. The discussion-feedback period helps the trainee in improving his performance for the next teach session. The supervisor helps the trainee to think and to offer alternative approaches. At the end of about eight to ten minutes discussion period, the trainee leaves the room for fifteen minutes which forms the planning period—the third session. He recasts his lesson in the light of suggestions given during the discussion period. While the trainee is thinking and planning for fifteen minutes, the supervisor goes through teach and discussion cycle with another trainee.

After the planning session, the first trainee begins the second phase, namely, the reteach session. He teaches the same basic lesson, not to the original group of students but to a new group of students of the same grade level. At the end of the reteach session, the same procedure is followed. This whole cycle of teach-discussion-planning-reteach-rediscussion takes about forty to fifty minutes.

Two days later, the trainee returns and repeats forty to fifty minutes pattern of teach-discussion planning reteach-rediscussion.

The trainee develops a different plan on the same skill. This particular pattern of eight to ten minutes lessons allows the trainee to practise each skill four times under conditions of maximum feedback and it has been found to be quite adequate for most of the skills. When a trainee has any trouble with a particular skill, special arrangements can be made.

The idea of microteaching or microtraining is already in operation in many other professions. The teacher training profession has been late to adopt and accept it. Below are given a few areas where microteaching has been and can be fruitfully used.

Pre-service and in-service training of elementary and secondary school teachers. It is used by teachers and administrators for developing the skills of teaching and to extend their professional competencies. It helps the women returning to the profession after some years. It is used by teacher corps as a part of introductory courses in education. It is used in programme evaluation. It can also be used in microcounselling and improving college teaching.

There are some other unique uses of microteaching in schools.

Elementary school teachers are being urged to teach the new mathematics and apply new reading techniques. Many experienced high school language teachers are not prepared to meet the demands of the audio-lingual approach.

Science teachers are using curricula that emphasise problem solving and inquiry. These teachers can benefit from concentrated practice with feedback in a microteaching clinic.

Any teacher who wants to try out new curricula or approaches, he can experiment with several alternatives with a limited number of students each time and with the opportunity for immediate evaluation and additional trials in microteaching. In this manner, teacher may experiment with new methods and new content, with economy of time and without the risk of defeating the purpose of student learning.

Microteaching can be a catalytic element for bringing teachers together to discuss professional issues.

Advantages and Limitations

The microteaching approach has its strong and weak points. Some of the advantages and limitations of microteaching are listed below:

Advantages:

—It focusses attention on teaching behaviour.

—It is a real teaching which lessens the complexities of normal classroom teaching such as class size, scope of contents, time and problems of discipline.

—Microteaching, if guided properly, is a success.

—Student teachers get satisfaction when they hear and see themselves in working as others hear and see them through video and audio tapes.

—Several sources of feedback are at one's disposal for giving maximum insight into one's performance.

—It allows for the increased control of practice. In the practice setting of microteaching, the rituals of time, supervision, methods of feedback and many other factors can be manipulated.

—It also focusses on training for the accomplishment of special tasks such as practice of instructional skills, the practice of techniques of teaching, the mastery of certain curricular materials or the demonstration of teaching methods.

—The use of video-tape enables one to build perceptual teaching models into the programme so that student teachers can analyse highly skilled teacher performances, practise their own approaches and match them with that of models.

—It equips the beginner with an array of teaching skills before he assumes instructional responsibility in the school.

- It makes supervision much more potent and strengthens supervision considerably. The supervisor knows his teachers' strengths and weaknesses.
- It enables the programme to take major step towards individualising the training of teachers.
- Microteaching is economical. It saves supervisor's time and increases the effectiveness. It does not very much tax pupils and schools.
- It allows new possibilities for teacher evaluation to be attempted. Better records, standardised conditions and equality in teaching assignments can be ensured.

Limitations:

Keeping in view the Indian conditions of teacher education and resources available, the idea of microteaching has to face a lot of difficulties. These difficulties can be classified as (i) administrative, (ii) pertaining to material resources and trained supervisors, and (iii) academic. As in the case of any innovation, these barriers are natural and have to be met with one by one in a planned way. The administrative difficulties mostly centre round the formation of microclasses and arrangement of the time-table. But with a careful planning, this limitation can be overcome. The difficulties related to material resources and trained persons always pose a serious challenge. The training of supervisors highlights the need of symposia, seminars and workshops. *Looking from the academic point of view, microteaching approach should not claim itself to be all inclusive approach. It is to be used as a diagnostic and remedial measure for the training of teaching skills. It should never claim as a substitute of macroteaching. It is to exist as a supplementary approach. It is economical and efficient but it is not everything.*

The idea of microteaching has research evidence for and against. Kallenbach and Gall (1969) found that the use of microteaching in pre-service teacher training programmes did not result in significantly higher ratings of teacher effectiveness than conventional means but it did prove more economical in terms of time and money. Allen *et al.* (1969) support the latter finding by recording that during the first year at Stanford, having divided the trainee teachers into two groups, the microteaching student teachers required an average ten hours of instruction per week to reach a certain level of competence, whereas conventional student teachers needed twentyfive hours per week to reach the same standard. They further note that when a comparison was made between the trainees' first microteaching lesson and the final lesson, the correlation was low, indicating that there was a change in the behaviour of trainees. A correlation between the final microteaching session and the actual classroom situation after six weeks' teaching gave a figure or $r = 0.68$. The investigators interpret that microteaching is suitable for predicting the actual classroom success of teachers.

The above discussion is helpful to understand the importance of microteaching as a research tool and training technique. A review of completed studies may further help in properly conceptualising the idea of microteaching and its applications in training and research.

CHAPTER II

STUDIES RELATED TO MICROTEACHING

In the previous chapter, the need and description of microteaching, its advantages and limitations have been discussed. This chapter deals with the related studies conducted abroad and in India.

As microteaching is a recent development, only a few studies pertaining to skills development, pre-service teacher education and comparative studies with traditional teaching programme have been conducted uptil now. Some miscellaneous studies pertaining to home economics and to upgrade the instructional programme are also discussed in this chapter. These studies are presented in the following captions.

Studies Abroad

Allen is a pioneer in the area of microteaching. He conducted a study in the University of Stanford in 1963. He suggested short microlesson to the trainees through microteaching procedure. The trainees were given theoretical lectures on particular skills. One skill was practised at a time. The skills selected were, stimulus variation, closure, and silence and nonverbal cues. The study showed favourable results for the component skills approach of microteaching.

As quoted by Allen and Ryan (1969), McDonald and Bandura studied the practicability of models in changing behaviour. They developed two treatments, (i) prior practice model to be used as an instructional model before teachers enter the class and (ii) a self-content pattern; this model was used to extend the trainees' knowledge of teaching skills. By practising the above models, they came across certain research questions such as : (i) Are certain personality patterns more influenced by models than others? (ii) Must the models be of the same sex as the trainee? (iii) Can two skills be performed simultaneously in the classroom? These questions can be answered only by further research in this area.

Kallenbach and Gall (1969) started research in the Far West Laboratory for Educational Research and Development (R & D). The purpose of the study was to determine the effectiveness of nineteen elementary school interns trained by microteaching approach and to compare them with eighteen other interns trained through conventional approach. The findings of the study were : (i) the two groups did not differ significantly on any of the post-training measures of teacher effectiveness. (ii) Microteaching was not found to be superior to the conventional training methods in its effect of teachers' classroom performance. (iii) Microteaching was a superior training strategy since it achieved similar results in only one-fifth of the time required for traditional training programme.

Another study was carried out by Kallenbach (1969) on microteaching with video-tape and block teaching practice. The criteria in Kallenbach's study was independent observer ratings on Stanford Teacher Competency Appraisal Guide for the performances of student teachers trained by microteaching or by block practice method in normal classroom. The experimental group, trained by microteaching achieved the same degree of proficiency in one-fifth of the time taken by the group trained by block practice method. These results indicate that microteaching is a more efficient technique than the block practice training procedures.

In support of the above results, Orme (1966) found that inclusion of films of model teachers in microteaching format demonstrating desirable teaching techniques, led to increased effectiveness in terms of classroom performance. An incidental finding of the study was that ratings of teaching performance based on brief video-taped lessons were generally good predictors of late ratings of teaching effectiveness. This finding has particular significance and deserves a detailed study. Further it indicated that while microteaching scaled down the classroom situation, it did not distort it. In other words, microteaching behaviour was not unique to that situation. It was representative of the teacher's actual classroom behaviour. This fact lends support to the claim of the propounders of microteaching that skills learnt in a microteaching situation will be applicable to the classroom situations also.

Bloom (1969) has described the practice of using microteaching clinic in the Interns Teaching Programme (ITP) at the University of Wisconsin. The programme was meant for college graduates, getting trained as teachers though they had little prior background in education. The author concluded : (i) the supervisors who observed the interns were more critical in identifying strengths as well as weaknesses in intern's teaching performances possibly because of the microteaching clinic; (ii) the supervisors could see them to be confident while teaching; and (iii) microteaching interns felt that the total effect of the microteaching clinic appeared to be of added relevance in the training procedure.

McCollum and La Due (1970) made an effort to avoid artificial situations through the elementary programmes for the inner city teachers of the Temple University for the preparation of elementary teachers from undergraduates. They used microteaching to add the needed dimension of reality. The second aim was to bring about a change in the teacher's role in the social studies classroom. They found that the student teachers reacted more positively and enthusiastically to their microteaching method courses. The 'Traditional Texts' did not realistically present life in the classroom. Microteaching provides the university student with some other expertise needed to enter student teaching. In fact microteaching makes the method courses more relevant in terms of the needed skills and behaviours demanded by the student teacher.

Bell (1970) started experimenting with microteaching in home economics education at Texas Technical University in 1967-68. The primary purpose of the experimental study was to determine the effect of training upon specific teaching skills of student teachers. Additional objectives were : (i) to develop a microteaching programme which was appropriate to the student teaching programme in home economics education; (ii) to identify the relationship between the demographic variables of student teachers and improvement in their performance; and (iii) to determine the reliability of ratings of the judges using the teacher performance appraisal scale. The sample of the study consisted of twentytwo home economics education seniors. They volunteered to participate in the study. The skills such as : (i) establishing set, (ii) reinforcement, (iii) questioning, (iv) achieving closure and (v) framing a reference, were considered to be the most prominent in the study. The conclusions of the study were : (i) the programme was relatively more effective in teacher preparation than the usual form of training provided by pre-service and student teaching experience; (ii) there was a possibility of a relationship between positive interaction of the group members participating in microteaching and a positive attitude towards microteaching, (iii) statistically there was no significant relationship between the improvement made in teaching by the experimental group and the control group and certain demographic variables which indicated that there was a possibility for microteaching to be used successfully regardless of student background and academic standing in the teacher training programme; (iv) eventually, it was found that there was a possibility for microteaching to be used early in the teacher preparation programme to serve as a screening device for the selection in home economics education; and (v) self-evaluation of student teachers was more effective in the case of microteaching than traditional student teaching.

The microteaching programme at the New University of Ulster in 1971 was used as a method of teaching, as a research tool and as a means of integrating theoretical and practical studies. The sample taken for this study included all the students of education. The time taken was weekly sessions for two semesters. The study was done in microteaching laboratory. The education students received lectures and demonstrations on the major component skills and attended curriculum programmes. For the selection of appropriate materials for microteaching task seminars were conducted.

In the first week, the course in psychology and social psychology was geared to the microteaching programme. The second week was allotted for the topic in psychology; the third week was for microteaching course. The topic was 'gaining and holding attention' and in the fourth week, the microteaching task was to plan and teach a lesson focussing upon a particular skill. The lesson was taught to five pupils for ten minutes.

In the second semester, the number of pupils increased from five to ten, the length of lesson from ten to twentyfive minutes and the student teachers planned a series of six linked lessons on one topic. They were expected to set precise curriculum objectives and to measure changes in pupils' knowledge and skills. This way the student teachers moved through the course from the relatively simple task of teaching one concept for ten minutes to five students to a situation which was half way towards normal teaching. In the following year of the education course, student teachers spent a semester in teaching groups and classes of children in schools. The evaluation was done by the supervisor and student teachers' self-ratings on assessment schedules. At the end of each semester, independent observers rated a sample of student teachers' lessons.

This was a part of general research enquiry conducted on the effectiveness of microteaching with and without video-tape playback and verbal interaction training (Flanders, 1970). In addition to this, there were two control groups, one studied education but did not undergo teacher training, and the other neither studied education nor received training in teaching.

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The controlled groups enabled to test the hypotheses that the study of education does have effects upon the classroom practice and that training in teaching skills through microteaching does produce effective change in students' attitude towards microteaching. More than eighty percent of the students in 1969-70 expressed satisfaction with the course. Some students complained of the difficulties of planning brief lessons and over ninety percent of them asked for longer time between teach and reteach in the cycle. They rated, "The opportunity to see oneself teach and the practice in planning lessons" as the most important feature of the course.

An example of the use of microteaching, in which the Rocky Mountain Educational Laboratory (RMEL) involved, was the extended summer programme sponsored by the Jefferson Country Public Schools in Colorado. The programme was designed to upgrade the entire instructional programme in the school district by providing in-service training experiences in team teaching and numerous other promising procedures. The planning component of each team used microteaching to validate curriculum empirically before trying it with large groups of children; the observation component of each team used video-tape recording for evaluating these teaching components. Thus one hundred experienced teachers had gone through the observing-planning-teaching cycles twice by the end of summer programme and several hundred children had participated. It was described as a highly enriched learning experience.

In Stanford study, Acheson (1964) investigated the effects of video-tape feedback and different kinds of supervisory treatments. He employed a design which involved six treatments derived from two major variables, viz., the presence or absence of video-tape feedback, and three types of supervisory treatments. The dependent variables were percentage of teacher monologue and the frequency of pupil participation. The three supervisory treatments used were direct, indirect and no supervisory conference. The investigator hypothesised that

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(i) direct supervision would improve the student teachers' performance, (ii) increased pupil participation would increase the frequency of episodes or completed verbal transaction. In testing the first hypothesis which was the first stage of the experiment, efforts were made to reduce teacher talk and to increase pupil participation. It was found that pupil participation did not differentiate the treatment groups. At the second stage of the experiment, the second hypothesis was put to test. The variable, namely, the frequency of episodes was measured in terms of the number of complete verbal transactions between two or more speakers per twenty minutes sample. The results, however, showed that in one group despite a decrease in teacher monologue, there was also a fall in episode frequency. Analysis of the data showed that neither direct nor indirect supervision produced significantly greater changes than no supervisory conference.

Orme (1966) studied the effects of modelling and feedback variables on the acquisition of a complex teaching strategy. Griffiths (1972) has referred the outlines of two studies reported in 'Technical Report No. 3 of Stanford School of Education. One of the studies investigated the effects of self-feedback and reinforcement on the acquisition of a teaching skill involving reinforcement of pupil-participatory response. It was found that the single most effective variable was "a form of self-viewing, accompanied by prompting by an experimenter during the self-viewing". The most powerful treatment condition was that in which the student viewed the video-tape of his own teaching whilst receiving reinforcement and cue discrimination training from the experimenter. The most effective treatment in a feedback condition was giving reinforcement and discrimination training. No significant differences were found between the group that received perceptual model training and the groups that received supervisor's feedback.

In other study four groups were subjected to four different treatments, viz., (i) group 'a' viewed replays of their own performance alongwith instruction on the lesson; (ii) group ' b ' received self-feedback with instruction on pupil participation and reinforcing behaviours; (iii) group ' c ' received reinforcement only and instruction as in group ' b '; and (iv) group ' d ' received reinforcement plus discrimination training. Group ' d ' showed greater gains than any of the other groups indicating that supervisor cue discrimination substantially improved the performance. However, there was no significant difference between group ' c ' and the other two groups excluding group ' d '.

Johnson (1968) has reported a pilot study at the University of Illinois in which the students were given instructions in the skills of ' lecturing ', ' giving directions ' and ' having discussion '. The three approaches of supervision were inductive, directive and subject oriented. Only the skill, namely, ' giving directions ' revealed systematic growth. It was found that different kinds of supervisory behaviour might have differential effects on skill acquisition.

In their oftquoted study on the contribution of supervision Tuckman and Oliver (1968) compared four feedback conditions: (a) pupil's feedback alone, (b) supervisor's feedback alone, (c) both pupil's and supervisor's feedback and (d) no feedback. All these types of feedback were given through the Student Opinion Questionnaire (SOQ). Results indicated that both treatments involving pupil's feedback, produced significantly greater change than the other two conditions. Moreover, a comparison of condition (a) and condition (c) indicated a failure for supervisor's feedback to produce any additional effect other than that accounted for by pupil's feedback alone. Compared to the no feedback condition, results also showed that supervisor's feedback produced a greater negative shift in teacher behaviour, away from the direction suggested by the supervisor.

Claus (1969) investigated the effects of modelling and feedback treatments on the development of teachers' questioning skills. The independent variable was the presence or absence of cueing by the supervisor during the presentation of the model tape and/or during the replay of the trainee's own microlesson. Cueing was defined as the supervisor classifying each question into one of eight categories and informing the student of this categorisation. The dependent variable was assessed by a count of the number of higher order questions asked in each of four ten-minute microlessons by each trainee. Forty students were divided into four experimental groups and were exposed to four treatments of: (a) supervisor cueing during presentation of model and microlesson replay, (b) supervisor cueing only during modelling, (c) supervisor cueing only during microlesson replay, and (d) no supervisor. Results indicated that the supervisor has a positive role to play in training with the video-tape models. It was also found that modelling in general was more effective than feedback procedures.

Resnick and Kiss (1970) studied a form of discriminative modelling in which contrasting multiple models were used. They chose a series of model performances, contrasting appropriate and inappropriate teacher behaviours and defining stimulus occasions for use in a programme aimed at training students in testing and diagnostic skills. The training procedure included three basic treatments: (a) Discrimination training (D) which involved viewing, rating and discussion of video-tape of diagnostic sessions, tapes of model sessions and problem session; (b) Practice (P) in which students diagnosed a series of children on several related tasks. Each session was viewed on vide-tape before starting work with the next child; and (c) Feedback (F) in which an experimenter serving as an evaluater, rated the trainee's performance and discussing the video-tape playback during the practice sessions. Combination of these treatments in the form of (i) D + P + F; (ii) P + F; (iii) D + P; were given to three experimental groups. Pre-test and post-test scores for these groups on different behaviour rating scales were compared.

Four of the scales, namely, 'teacher eliminating choices'; 'teacher permitting child to eliminate choices'; 'cueing'; and 'failing to distract the child between responses', showed consistent and significant improvement for the DPF and DP groups as compared with slight improvement in the PF group. On the two other scales 'certainty' and 'time spent on single task' there were no significant differences between groups. The main conclusion drawn from the study was 'discriminative modelling techniques can produce a capacity for self-editing which substantially reduces a trainee's reliance on outside feedback'.

Morse, Kysilka and Davis (1970) have reported a study of the effects of different kinds of feedback on the training of thirty-nine secondary school teachers in 'refocussing behaviours'. This skill is defined as "those changes in a teacher's lesson which have the purpose of gaining, maintaining and/or increasing pupil attention". Four experimental treatments: (a) no feedback from audio-tape or supervisor, (b) feedback from audio-tape only, (c) feedback from audio-tape and by listening to a guide, and (d) feedback from audio-tape, guide and supervisory conference were compared. Four sets of criteria, namely, (a) student self-evaluation on rating scale, (b) 'peer pupil' ratings, (c) observer count of refocussing behaviours, and (d) observer's ratings on the scales used by students in the experimental group (a) were employed.

There were no significant differences between groups for criteria (a), (b) and (d). Significant difference on criterion (c) suggested that group (d) seemed to profit from listening to their tapes with a guide and having a personal supervisory conference. One of the conclusions reached was that "the available evidence does not support the value of feedback in the absence of a personal supervisor".

Young (1970) compared the effect of the provision of a single supervisor with colleague supervisor teams. It was found that students working in teams, performed a significantly greater number of specific teaching behaviours in 'orienting students to the learning task'. Students in teams also performed significantly better on three of the eight verbal and three of the ten nonverbal behaviours aimed at 'reinforcing students' responses'.

Johnson and Knaupp (1970) concluded in their experiment on supervisors that students preparing for microteaching expect that supervisors must be qualified to render technical assistance.

Young, Lee and Richards (1971) worked with a group of thirty pre-service teachers practising teaching 'a concept lesson', in microteaching setting. Two of their experimental groups were: (a) oral group—where oral evaluation by a supervisor was not available, and (b) video-group—where video-tape replay was not available. Using the Verbal Interaction Category System (VICS) and the 'Video Teaching Evaluation Form' to provide dependent variable measures, they found no significant differences between the video and oral groups.

McIntyre (1971) compared the relative effectiveness of three approaches to microteaching supervision. Students undergoing the same microteaching programme were allocated to one of the three treatments of: (a) individual conference with a tutor supervisor, (b) groups of three students working with a tutor, and (c) groups of three students working alone. Comparison of group (a) with groups (b) and (c) indicated that group (a) showed a significantly greater mastery of the skills studied. Comparison in terms of their opinions and reactions revealed that most students considered it beneficial to have a tutor supervisor to work. McIntyre concluded "atleast for those Scottish students without previous teaching experience, the provision of tutors appears necessary".

Studies in India

Tiwari (1967) led the project in microteaching in Government Central Pedagogical Institute at Allahabad. It was found that the scheme can be used profitably both in the teacher training institutions and secondary schools. Some elements of individual teaching, if introduced in the scheme of teaching in practising schools will display the student-teachers' insight and make them better qualified for the job.

In 1970 Shah started an experiment in microteaching procedures. He started with seven students of class ninth. The students were taught by an experienced teacher for seven to eight minutes and the lesson was recorded on a tape. He observed that the tape recorder helped the teacher in correcting his mistakes.

Chudasama (1971) tried out microteaching procedure in student teaching. Only six students volunteered themselves for microteaching. Both the control and the experimental groups were from the Faculty of Education and Psychology, Baroda.

The objectives of the study were: (i) to know the extent to which microteaching procedure could help the student teachers in developing more indirect teacher behaviour; and (ii) to see whether interaction analysis can profitably be synchronised with microteaching procedure. As a result of training through microteaching, the student teachers developed skills in questioning and ensured better pupil participation.

Singh (1973) compared the effectiveness of microteaching technique and Flanders Interaction Analysis with verbal teacher behaviour. He selected a sample of twenty student teachers from a teachers' college in Uttar Pradesh. It was divided into three groups. One group received the treatment through microteaching, the other through Flanders Interaction Analysis technique and the third was the control group of ten student-teachers which received the treatment of traditional method of training. The results indicated that: (i) student-teachers trained through microteaching and those through Flanders Interaction Analysis technique changed their verbal teaching behaviour in the classroom more significantly compared to the student-teachers trained in traditional way only; (ii) the student teachers trained through microteaching changed their verbal behaviour in the classroom significantly better than those trained through Flanders Interaction Analysis technique.

Marker (1972) conducted a study which aimed at comparing the performance of student teachers trained by microteaching and conventional approaches. The sample selected was from only geography method group. Five skills such as (i) set induction; (ii) stimulus variation; (iii) questioning; (iv) response to pupils' answers and reinforcement; and (v) closure were selected. The microlessons were given in the normal geography classes. The lessons were recorded on a tape and feedback was given on the following day. Microteaching was found to be quite effective.

Marker (1973) conducted another experiment on microteaching in simulated conditions. Results were again found to be encouraging.

Pangotra (1973) in his study has compared the effectiveness of the different sources of feedback on the classroom behaviour of student teachers during their student teaching programmes. The different sources of feedback were: (1) student herself, (2) the college supervisor and (3) external observer. The sample consisted of fortyeight women unmarried student teachers who were freshers. The classroom behaviour was observed by Flanders Interaction Analysis Category System (FIACS). It was found that the student teachers who received self-directed feedback performed better than those who received feedback from other sources. Feedbacks from college supervisor and external observers were also found to be effective when comparisons were made with the control group which received no feedback.

While concluding this chapter, it can be said that most of the related studies done abroad and in India have shown that microteaching has an edge over conventional training approach in terms of economy of time needed to train teachers in certain skills of teaching.

References have been made above that the huge and complex task of training the teachers taxes the experimental and practising schools. The schools want well trained teachers. They do not want their children to be treated as guinea-pigs in the hands of novice and unskilled teachers. To meet this genuine grievance and to strengthen the training programme of colleges of education, microteaching in simulation conditions is suggested as one of the many teaching situations. The next chapter is devoted to communicate the idea of simulation and teaching skills.

CHAPTER III

SIMULATION AND TEACHING SKILLS

The present chapter is devoted to : (i) the description of the concept of simulation; its application and advantages to teacher education programme; as well as (ii) the selection of a few important teaching skills.

Simulation

Engineers built models of aircraft, studied their performance in a wind tunnel, made some adjustments in the model and after meeting certain requirements built a prototype. Production models were developed after repeating the above process two or three times as required. Production models are also studied under conditions of actual performance. Simulated war games are well known.

Fattu (1966) observes that simulation can be a significant breakthrough for the improvement of educational practice. He further observes that modelling and simulating have long been used to further applied research in physical sciences, simulation can be effectively used in educational research and its development.

Webster's New International Dictionary defines simulation "as giving the appearance or effect of; to have characteristics of". "Simulation may be considered as a dynamic implementation of a model representing a physical or a mathematical system" observes (Fritz, 1965). Thus, simulation is just next to real thing. Simulation is a way to break down a difficult or a complex system into sub-systems.

Horman as reported by Bushnell (1962) listed five reference points for simulation.

(i) *Identity Simulation* in which the actual system is used as a model, (ii) *replication simulation* in which an operational model of the system in its normal environment is used, (iii) *laboratory simulation* wherein replication is attempted in the laboratory, with features of the real system represented, (iv) *computer simulation* is more abstract representation of the real system, while (v) *analytical simulation* uses mathematical models and attempts to obtain a solution by analytical means.

Cruikshank (1966) reported student teachers preparation programme of the University of Tennessee using simulation. Simulation was used by Kersh (1962) for training student teachers at the Centre for Teaching Research in Oregon State System of Higher Education. Medical schools are already using simulations in diagnosing various pathological conditions. Wynn (1964) described the use of simulation efforts in preparing students for administrative positions. The Board of Co-operative Educational Services of Northwestern Westchester, New York, conducted research in computer assisted instructions using games approach for teaching the principles of economics. The Michigan-Ohio Regional Education Laboratory (MOREL) has taken a position that social skill training can be implemented by simulation. Flanders (1970) has given a complete format of the SSST for teacher training.

Advantages of Simulation

Simulation is next to real thing, a major advantage is that the decision makers (learners) may become aware of the consequences of their decisions without suffering the real consequences. Simulations compress time and with it also goes a compression of experiences for the learner. He can be exposed to many more experiences in a brief period and just as it is less tiring to think out a problem rather than to manipulate all objects and sequences that will solve the problem. This approach is quite useful in early training exercises and for the purpose of introducing a new strategy. It is useful as the total performance time is less than fifteen minutes and a larger number of students can be accommodated daily by limited video equipment or limited number of supervisions.

To support further, Fattu (1966) lists the reasons for the use of simulation, as under :

(i) When an environment cannot be duplicated exactly, then, it may be made as realistic as possible. (ii) When a process is to be examined systematically it may yield information through developing and operating of a simulation. (iii) When a system is too difficult to manage, simulation may suggest a way of breaking it down into sub-systems, then it may be noted, how the skills and the information required may be pooled. (iv) When a difficult problem is confronted beyond a teacher's ability, simulation may help him synthesise and infer a good solution. (v) Cost may be reduced by simulating rather than by the alternative forms of experimenting. (vi) Simulation may also indicate which variables in a complex operation or system are important and how they are related to each other. (vii) The amount of time accomplished is controllable by the simulator. (viii) Unforeseen problems arising from the introduction of innovations may be identified by simulation and risk is minimised.

Keeping this in view the present study aimed at conducting experiment in simulated as well as in real classroom situations. For this purpose the skills to be taken into consideration are selected and described in the following paragraphs :

Teaching Skills

A good teacher education programme should aim at enriching the content of school courses, professional courses and training of skills in teaching. With the development of different observational systems, CCTV and VTR the emphasis is increasing towards training in teaching skills by component approach.

By and large, mastery over the skills would increase proficiency in the performance of the desired task. The task may be speaking, typing, playing an instrument or teaching. The beginning teacher needs certain skills prior to his internship period. Apart from other cognitive and affective aspects, an effective teaching behaviour would consist of many types of teaching skills. Allen and Ryan (1969) have mentioned the following few skills which can be applied at different teaching levels and in different teaching subjects. The skills are :

(i) Set induction.
(ii) Stimulus variation.
(iii) Closure.
(iv) Silence and nonverbal cues.
(v) Reinforcement.
(vi) Questioning. (Probing, Divergent and Higher-Order).
(vii) Recognising attending behaviour.
(viii) Use of illustrations and examples.
(ix) Lecturing.
(x) Planned repetition.
(xi) Completeness of communication.
(xii) Teacher liveliness.

Selection of Skills : The supervisors discussed the importance of the skills and selected only four skills keeping in view the scope of the experiment of microteaching in simulated conditions. These are :

(i) Skill in questioning.
(ii) Skill in reinforcement.
(iii) Skill in silence and nonverbal cues.
(iv) Skill in illustration and use of examples.

Skill in Questioning : Questions are used either to develop a point under discussion or test the student knowledge. There is a wide range of quality of questions. Good classroom questions recognise the wide possibilities of the thinking process and level of thought involved. Some of the basic elements which make a good question are precision, clarity, simplicity, challenge and definiteness. Questions can be classified as convergent, divergent, evaluative, etc., depending upon the thought process that is involved. Amidon and Hunter (1966) classify questions as 'narrow' or 'broad' depending upon their tapping the lower or higher thought process. Narrow questions demand simple 'yes' or 'no' answer from the student. Broad questions are not based on simple recall. They are really divergent questions seeking answers based on either predicting, inferring, hypothesising or reconstructing.

Within the cognitive domain, a number of categories of thinking are defined by Bloom (1956) which encompass all intellectual objectives in education, namely, memory, translation, interpretation, application, analysis, synthesis and evaluation. Questions are categorised by Sanders (1966) based on Bloom's 'Taxonomy of Educational Objectives' referred to above. Thus, if a teacher can provide all the six categories of questions other than Cognitive Memory then it can be said that the teacher is touching every aspect of critical thinking.

Observation sheets for the skill in questioning were prepared for the supervisors to observe and record their comments of the microlessons.

Skill in Reinforcement : Reinforcing the desirable pupil behaviour is an integral part of the teacher's role as a good director of classroom learning. Substantial psychological evidence confirms the value of reinforcement in learning. The acquisition of knowledge of specific techniques of reward and punishment and the development of skill in using them appropriately in specific situations is most important in training a beginning teacher. The teacher can acquire this skill through systematic practice using simulation technique. Positive reinforcement increases the likelihood of desired responses. Reinforcement can be classified as under :

(i) Positive verbal—indicated by the use of expressions such as 'good', 'excellent', etc.

(ii) Positive nonverbal—indicated by head movement, gestures, etc.

Observation sheets were prepared keeping in view the nature of the positive reinforcements, distribution of the reinforcement and the appropriateness of the reinforcement.

Skill in Silence and Nonverbal Cues : In colleges of education, the supervisors have found that teachers talk to fill the silence gaps. Many teachers do not realise that teacher silence is a powerful tool in the classroom. The teacher trainers should undertake the responsibility of making the student teachers understand the importance of silence and pause and use this skill along with other skills to increase student participation. The techniques of questioning and use of silence and nonverbal cues help to reduce the dominance of teacher talk in the classroom. The skill in silence and nonverbal cues helps at keeping the teacher away from continually interjecting himself in the discussion in the classroom. There are four broad categories of nonverbal cues :

(i) Facial cues—such as a smile, a frown, a serious look, etc.
(ii) Body movements—moving towards responding pupil, etc.
(iii) Head movements—nod, cocking of head, etc.
(iv) Gesture—pointing to student, explaining etc.

In a particular cultural setting, with a particular teacher in a classroom, students can understand the meanings and indications inherent in the nonverbal cues of the teachers. All teachers, as a matter of fact, use this skill. To train the student teachers to master the skill involves making them understand the types of nonverbal cues and using them in the proper context. Allen and Ryan (1969) have described meanings of certain gestures which teachers may use to encourage students for participation.

Observation sheets were prepared keeping in view the recordings of the silence and nonverbal cues provided by the teacher, their types such as 'stop cue', 'continue cue' etc.

Skill in Illustration and use of Examples : Children prefer illustrations that relate to their previous experiences, associated with places, persons, objects, events, etc. Therefore, the use of examples is basic for good, sound, clear and effective teaching. Examples are necessary to clarify, verify or substantiate concepts. Both inductive and deductive uses of examples can be used effectively by the teacher. Effective use of examples includes : (i) starting with simple examples and progressing to more complex ones; (ii) starting with examples relevant to students' experience and knowledge; (iii) relating the examples to the principles or the ideas being taught; (iv) checking to see if the objectives of the lesson have been achieved by asking students to give examples which illustrate the main point.

Observation sheets were prepared keeping inview the above considerations, details of which may be seen in the appendices.

Most of the studies reported in earlier chapters indicate that microteaching approach is economical in time and efforts. Studies have been conducted for in-service and pre-service teacher training courses. The setting of such studies have been in real classroom, microteaching clinics and even in simulated laboratory conditions. The mechanical gadgets like audio-tape, video-tape, as well as some systematic observation tools have been used. Microteaching experiments have been conducted keeping in view different types of objectives and facilities.

Since most of the results happened to be encouraging especially in terms of time required to attain particular level of skill training, it was felt to undertake a study in the area of microteaching. Such a study was proposed in two types of settings, namely, simulated settings and actual classroom settings.

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CHAPTER IV

EXPERIMENTS IN MICROTEACHING

This chapter includes the procedure and the findings of the two experiments of microteaching done in simulated and real conditions. The first part is devoted to the experiment in simulated conditions whereas the second one refers to the experiment in real conditions.

Experiment in Simulated Conditions

The experiment was planned and conducted to fulfil the following two objectives:

(i) To see the feasibility of microteaching in the colleges of education.

(ii) To know the attitudes of student teachers towards microteaching in simulated conditions.

Procedure: The experiment of mircoteaching in simulated conditions consisted of different stages. The first stage included the locating of a group of experienced teacher trainers, orienting them to the concept and procedure of microteaching and simulation, selection and discussions of some teaching skills, development of the observation and feedback proformas, discussing the time schedule outlines and short group discussions amongst the supervisors for knowing their reactions. The second stage was the selection of student teachers, explaining them the concept of microteaching, different modes of observations and feedback, and discussion about the lesson plans, selection of teaching units, etc.

Selection of Subjects: In order to select the experimental student teachers, the concept of microteaching and the proposed outline of microteaching experiment in simulated condition were explained in the regular B.Ed. classes of the Faculty of Education and Psychology, the M. S. University of Baroda,

Baroda. The student teachers who volunteered for such experiments and who were able to communicate through English medium were considered for selection for the present experiment.

In the beginning twenty student teachers volunteered. Out of these only twelve student teachers were selected randomly. This sample of twelve student teachers is being described below according to their sex, age, experience and their teaching methods:

(i) *Sex:*

Male	*Female*	*Total*
7	5	12

(ii) *Age in Years:*

20-25	26-30	31-35	35 *onwards*	*Total*
3	5	1	3	12

(iii) *Experience in Years:*

Nil	1-2	3-4	5	*Total*
3	6	2	1	12

(iv) *Methods Offered:*

English	*Hindi*	*Marathi*	*Sanskrit*	*Music*
6	3	2	2	1

History	*Geography*	*Mathematics*	*Science*
1	3	4	2

Supervisors: In this experiment, the supervisors were four Teacher Fellows of the CASE (1972-73). These supervisors were the teacher trainers having teaching experience ranging from four to ten years. The supervisors were oriented before hand in the theory and outline of the microteaching experiment in simulated conditions. With this group, the meaning, importance and priority of teaching skills were also discussed. Based upon such discussions, the outlines for observations and the corresponding proformas were also finalised. The supervisors were instructed about the evaluation of the microlesson. They discussed about microunits with the student teachers.

Procedure of Microteaching Experiment: As this experiment was to be conducted in simulation, the student teachers who had joined this experiment, acted as microteachers, students and also as peer observers.

The beginning two sessions were allotted to orient the student teachers on the theory and practice of microteaching. The student teachers were also acquainted with different teaching skills so that they might not have any difficulty in practising them in microlessons.

In the third session, the student teachers were shown the model microlesson on the skill of questioning. The model lesson was given using the following five steps:

Model Teacher:

Microclasses : 6 student teachers in class 'X' and
6 student teachers in class 'Y'.

Number of Supervisors : 4

A = Teach——class 'X'——8 minutes
B = Discussion——feedback——10 minutes
C = Planning——10 minutes
D = Reteach Class 'Y'——8 minutes
E = Recritique——10 minutes

Here the student teachers acted as students. The unit selected for the lesson was of common interest. The supervisor and microteacher discussed the lesson given. The model microteacher went for planning the lesson for reteach purpose. Thus, the student teachers were acquainted with actual microlesson procedure with the help of model lessons on each of the four skills selected. The time for microlesson ranged from five to eight minutes.

After having oriented to different skills and procedure of microlesson, student teachers were asked to prepare microunits in consultation with the supervisors. The student teachers followed the following design for the experiment:

Design of the Experiment in Simulation Conditions

	Sessions	*Time*	*Room (A)*	*Room (B)*
1.	Teach	9.0- 9.06 a.m.	Microteacher I Class 'X' Supervisor I Unit I	Microteacher II Class 'Y' Supervisor II Unit II
2.	Critique	9.06- 9.15 a.m.	Class 'X' + Supervisor I + Microteacher I Unit I	Class 'Y' + Supervisor II + Microteacher II Unit II
3.	Replanning	9.15- 9.30 a.m.	Supervisor I free Class 'X' free Microteachers I and II leave for replanning the microlessons.	Supervisor II free Class 'Y' free
4.	Reteach	9.30- 9.36 a.m.	Microteacher II Class 'X' Supervisor II Unit II	Microteacher I Class 'Y' Supervisor I Unit I
5.	Recritique	9.36- 9.50 a.m.	Microteacher II + Class 'X' + Supervisor II Unit II	Microteacher I+ Class 'Y' + Supervisor I Unit I

Each student teacher got the chance of being a microteacher, student and supervisor in case of all the four skills. The units selected for microlessons were of common interest such as microorganism, Olympics, colour perception, etc. This experiment continued for twentyfour sessions on every alternate day.

Tools: It has already been discussed in earlier chapters of this report that the observation sheets for each skill have been prepared in the light of the characteristics of each skill. The specimen copies are attached in the appendices 2-6. The supervisors evaluated the microlessons with the help of these evaluation sheets.

An experiment is of worth if it is evaluated by suitable tools. For this experiment, it was necessary to know the reactions of the student teachers towards microteaching in simulation. An attitude scale related to different aspects, namely, (i) microteaching technique (fifteen items), (ii) component skills of teaching (three items), (iii) time duration for microlesson (two items), (iv) microlesson unit (three items), (v) provision for feedback, discussion and comments (six items), (vi) supervisor's role (four items) and (vii) overall attitudes towards microteaching, was constructed. Responses were to be given on a five-point scale to all the items. This tool, ' Attitude Scale towards Microteaching ' (ASMT), consisted of thirtythree statements. The second tool, ' Evaluation Sheet for Simulated Microteaching ' (ESMT), consisted of nineteen statements which required ' Yes ' and ' No ' type responses. In this tool, last item was of open-end format so that the student teachers might respond to it freely. The second tool also represented the same seven variables as that of ASMT. The reactions were invited towards simulated microteaching experiment. For example, ' Do you agree that microteaching should be done in simulated condition? ' Yes/No.

Both the tools ASMT and ESMT were administered to the experimental student teachers. The scoring system was such that higher the score the more favourable was the attitude of the student teachers towards microteaching and vice versa.

Results: Considering the total scores obtained for each variable on the first tool (ASMT) intercorrelations amongst each variable were calculated. Chi-squares were found out for the data of each statement of the second tool (ESMT).

Attitude of Student Teachers towards Microteaching: The data collected with the help of ' Attitude Scale towards Microteaching (ASMT) ' represented attitudes of microteachers towards: (i) microteaching techniques ,(ii) component skills, (iii) provision of time, (iv) microteaching unit, (v) provision for feedback and (vi) supervisor's role and (vii) total attitude score which are presented in Table 1.

TABLE 1

Total Scores of 12 Students on Seven Variables Related to Microteaching

Trainees	*Variables (1 to 7 as above)*						
	1	2	3	4	5	6	7
1	44	8	5	8	20	14	99
2	52	9	6	12	27	10	116
3	52	9	6	12	27	12	118
4	60	10	5	9	27	10	121
5	55	11	2	7	25	12	112
6	42	9	6	12	22	10	101
7	49	10	4	10	25	9	107
8	57	11	3	8	26	13	118
9	44	9	5	8	21	9	96
10	60	11	9	13	27	13	133
11	49	12	6	10	26	9	112
12	59	11	6	10	27	10	123

It may be noted here that the maximum score of the student teachers on the scale (ASMT) could be 165 (thirtythree items multiplied by the maximum weightage of 5) whereas minimum total attitude score could be thritythree. The student teachers' total scores varied from 96 to 133. This gives a fairly rough estimate of the students' attitude towards microteaching as favourable one. Anyhow, statistical treatment in the form of chi-square was also applied.

Before analysing the results further, it was thought appropriate to see the intercorrelations amongst six different variables and the total scores on ASMT which helped to see to what extent the variables were overlapping.

The rank difference correlation (Rho) matrix (7 × 7) is given below in Table 2.

TABLE 2

Intercorrelation Matrix—7 × 7 (N = 12)

Variables	*Variables (as listed below)*						*Grand*
	1	2	3	4	5	6	*Total*
1 Microteaching technique	—	0.58*	0.41	0.48	0.90	0.37	0.91†
2 Component skills	—	—	0.07	–0.03	0.42	–0.03	0.56
3 Provision of time	—	—	—	0.88†	0.54	0.04	0.41
4 Microteaching Unit	—	—	—	—	0.57	0.10	0.45
5 Provision of feedback	—	—	—	—	—	0.13	0.91†
6 Supervisor's role	—	—	—	—	—	—	0.37
Total attitude score							

* Significant at .05 level.

† Significant at .01 level.

Out of the twentyone correlation coefficients (Rho) only five happen to be significant. The relationship between the attitude towards microteaching technique and the attitude towards component skills is positive and significant at 0.05 level. The coefficient of correlation between the attitude towards the technique of microteaching and attitude towards the provision for feedback is 0.90 which is significant at .01 level. The correlation coefficient between the attitude towards technique of microteaching and total scores on ASMT is 0.91, significant at .01 level. The correlation coefficient between attitude towards the provision for time and attitude towards microteaching units covered in a microlesson is .88, significant at .01 level. Lastly, the correlation coefficient between the attitudes towards the provision for feedback and the total scores on ASMT is 0.91 significant at .01 level (the total scores on ASMT represent the extent of favourable/unfavourable attitude towards microteaching).

This indicates that the attitude towards the microteaching has something in common with attitude towards the provision for feedback and the total scores on ASMT. The student teachers who have favourable attitude towards microteaching in general, also have favourable attitude towards provision for feedback and component skills. Anyhow, these results should be cross-validated with the help of a more comprehensive study having a larger sample and more comprehensive tools.

The distributions of the scores related to the six different variables of ASMT were tested against equal chance hypothesis and the results are given in Table 3 below :

TABLE 3

Chi-Square Values for the Six Categories of ASMT

Microteaching technique	6.18*
Component skills	15.18†
Provision for time	2.18
Microteaching Unit	3.18
Provision for feedback	8.18*
Supervisor's role	4.68
Total	8.75*

* Significant at .05 level
† Significant at .01 level

The equal chance hypothesis has been rejected in the case of (i) total attitude scores on ASMT, (ii) attitude towards technique of microteaching, (iii) attitude towards component skills and (iv) attitude towards provision for feedback. In these four cases, it has been found that the students have shown favourable attitude towards microteaching towards component skills, provision for feedback and the technique of microteaching. In case of the other three aspects related to the provision for time, microteaching units covered and the role of supervisors, student teachers have a neutral attitude. The equal chance hypothesis, therefore, is accepted in case of the above three aspects.

Evaluation of Microteaching Experiment in Simulation Conditions : Chi-square results based upon the data collected with the help of evaluation sheet (ESMT) from twelve B.Ed. student teachers are given in Table 4 below :

TABLE 4

Chi-Square Values for Each Statement of Evaluation Sheet for Simulated Microteaching (ESMT)

	Yes	*No*	*Chi-Square values*
1 Do you think that microteaching is feasible in teacher training programme?	10	1	5.80†
2 Should simulated microteaching be done before starting live classroom experiments?	11	0	9.00*
3 Should there be only a single teach session?	1	11	6.74*
4 Do you think that the time given for teach session was enough?	8	4	0.75
5 Do you think that reteach session is a must in microteaching?	11	1	6.74*

	Yes	*No*	*Chi-Square values*
6 Do you think that time should not be given between the two teach sessions?	1	11	6.74*
7 Do you think that more time should be given for the preparation of reteach session?	2	10	4.8†
8 Do you think that the feedback given in simulated teaching is relevant?	11	0	9.09*
9 Do you think that the manner of giving feedback should be improved?	5	7	.08
10 Do you believe that there should not be feedback in microlessons?	0	12	10.08*
11 Do you think that the supervisors should be still more critical?	7	5	.08
12 Do you believe that initial planning of microlesson should have been done in consultation with the supervisors?	9	3	2.08
13 Do you want any improvement in organizing the simulated microteaching?	7	5	.08
14 Do you think that simulated microteaching was a farce?	0	12	10.08*
15 Do you feel that by attending microteaching programme, you gained something?	12	0	10.08*
16 Do you think that you have wasted your precious time in attending simulated microteaching sessions?	0	12	10.08*

	Yes	No	Chi-Square values
17 Do you think that microteaching will be useful to you when you go back to your schools?	11	0	9.09*
18 Do you find anything useful in microteaching which you can convey to your friends?	12	0	10.08*
19 Did you find microteaching approach more difficult than traditional teaching?	3	9	2.08
20 Do you have any other comments on simulated microteaching? Please state.	—	—	—

† Significant at .05 level

* Significant at .01 level

Except six statements of ESMT all other terms have yielded significant chi-square values. This indicates that in general the microteachers have really shown some definite patterns of responses while evaluating the simulated microteaching experiment.

About the feasibility of microteaching in teacher training programme, this sample of microteachers have favourable opinion. For the introduction of simulated microteaching in teacher training programme also, the group has expressed favourable opinion.

The pattern of single teach session has not been favoured by the student teachers. They favoured reteach sessions. The time given for teach session in microlesson was sufficient as they have expressed favourable opinion about it. In case of planning, the time given in between the two teach sessions, students have expressed favourable opinion. The microteachers were satisfied regarding the relevance of the feedback. They were not clear whether feedback technique should be improved; when asked about the improvement in the manner or the style of feedback given, they have responded at random; the chi-square value is not found to be significant. Regarding the supervisor's critical observation and the practice of planning a microlesson in consultation with supervisors, they have not expressed any definite opinion. About the organisation of simulated training situation they have not given any definite response. Microteachers have not thought that they have wasted their time in attending this programme.

In addition to this, they had a few observations to make.

They are : (i) command on language and wide vocabulary are necessary; (ii) microteaching programme is important in this scientific age; (iii) special training for supervisors should be given; and (iv) this programme is interesting and helpful to in-service and pre-service teachers.

Experiment in Real Classroom Situation

The proposal of second phase of the experiment was to conduct microteaching experiment in real life situations of the Experimental School of Faculty of Education and Psychology, the M. S. University of Baroda, Baroda. This phase of the study had the following objectives :

(i) to know the feasibility of microteaching technique in student teaching programmes;

(ii) to know the reactions of the student teachers towards microteaching programme executed in real school situations.

Methodology : Like the first experiment of microteaching in simulated conditions, all the steps were repeated for this live situation experiment. The supervisors were already trained. The selection of skills, the development of observation proformas for evaluation purposes, etc., were kept similar to that of earlier experiment. In this experiment a new group of student teachers was sected. Later on these student teachers had to go through the orientation programmes as were there for microteachers of simulated conditions. Since the microteaching settings were planned to be in a school situation, therefore, the M. S. University Experimental School was selected keeping in view the facilities available. The procedural outlines of teach, critique, planning, reteach and recritique sessions were planned in a slightly different fashion than that of the simulated condition experiment. The training treatment was related to the earlier selected four skills.

Experimental Subjects : The concept of microteaching was again explained to the student teachers of B.Ed. class of the Faculty of Education and Psychology, the M. S. University of Baroda, Baroda. They were asked to volunteer to join the microteaching experiment to be conducted in real classroom situation. The only condition was that they had to know Gujarati. This time again twelve student teachers were randomly picked up from those who volunteered. It may be mentioned here that this sample was completely different from that of the simulated experiment. The sample is described below :

Sex :

Male	*Female*	*Total*
3	9	12

Age in Years :

20-25	26-30	31-35	*Total*
3	6	3	12

Experience in Years :

Nil	1-2	3-4	5	*Total*
5	5	1	1	12

Methods offered

Gujarati	*Hindi*	*English*	*Science*	*Mathematics*
5	7	1	2	2

History	*Geography*	*Home Science*	*Music*
4	1	1	1

Supervisors : The supervisors for live situation experiment were already trained and experienced.

Microlesson Schedule : After the orientation programme of the microteachers and selection of sixth and seventh grades' Gujarati medium students of the Experimental School, the lesson schedule was developed as follows :

Microlesson Schedule

1	Teach	Micro-teacher	1	Unit A	(6-8) school students	Supervisor
		,,	2	,, B	,,	,,
		,,	3	,, C	,,	,,
2	Critique	School students go to their respective classes. Supervisor and microteacher discuss the performance with respect to the selected teaching skill. Sequence of discussion sessions will be kept in order of microteachers 1, 2 and 3.				
3	Planning	The three microteachers 1, 2 and 3 are busy in planning their lessons for reteach sessions to be held on the same day.				
4	Reteach	Micro-teacher	1	Unit A	Next set of 6-8 students	Supervisor
		,,	2	,, B	,,	,,
		,,	3	,, C	,,	,,
5	Recritique	Similar to critique session.				

This schedule helped to continue teaching to the same set of students for three microteaching units which were planned to be in continuity in general.

This experiment was continued for fortyeight such lessons. The microlessons were evaluated and observed on the basis of observation sheets prepared for the simulated teaching.

The student teachers were evaluated by observing their conventional lessons before and after microteaching training.

The supervisors' remarks about the lessons given before and after microteaching training were also collected.

The evaluation tools which were used in the simulated experiment, were administered to the student teachers to know their attitude towards microteaching. As final examination lessons were going on, all the twelve student teachers could not be contacted so only six student teachers returned the tools duly filled in. Data on the ASMT and Evaluation Sheet for Real Microteaching (ERMT) were collected from six microteachers only.

Data of ASMT: The data of six microteachers collected with the help of Attitude Scale towards Microteaching (ASMT) were representing six variables as shown in the earlier experiment. These are presented in Table 5 below:

TABLE 5

Scores of Six Microteachers on Different Variables of the Microteaching Programme

Trainees	*Micro-teaching technique*	*Component skills*	*Provision for time*	*Micro-teaching unit*	*Provision for feed-back*	*Supervisor's role*	*Grand Total*
1	58	13	8	12	24	13	128
2	61	14	8	11	22	13	129
3	49	11	8	10	20	11	109
4	59	12	9	12	26	13	131
5	53	13	7	9	28	11	121
6	64	15	9	9	29	10	136

The student teachers' total scores on ASMT ranged from 109 to 136. This gives a rough indication of their favourable attitudes towards microteaching.

The distributions of the scores under the six different variables of ASMT were tested against the equal chance hypothesis and the results are given in Table 6 below:

TABLE 6

Chi-Square Values for the Six Categories of ASMT

Variables	*Chi-Square*	*Remarks*
1 Microteaching technique	2.375	Not significant
2 Component skills	4.375	Not significant
3 Provision of time	4.375	Not significant
4 Microteaching unit	2.375	Not significant
5 Provision of feedback	2.375	Not significant
6 Supervisors' role	4.375	Not significant

None of the above chi-square values given in Table 6 is significant. This may mean either random distribution of attitudes of microteachers towards microteaching or it may also mean the inadequate number of subjects in the group. The second explanation is being proposed on account of opposite findings of the experiment in simulated conditions. The inconsistent findings can also be attributed to supervisors, new set of microteachers, differences in microteaching settings, etc. Anyhow, some detailed studies are desirable to explore the situation.

Evaluation of Microteaching Experiment in Real Classroom Situations: Chi-squares were calculated for the data collected with the help of ERMT. The microteachers have expressed the favourable opinion about the sufficiency of time meant for planning the reteach session. They were satisfied about the feedback provided and utility of this approach. Microteachers did not find microteaching more difficult than conventional teaching.

Suggestions

Based upon the experiences and findings of the present study, the following few suggestions may be considered for a teacher training programme.

It has been found that the microteaching experiment both in simulated conditions as well as in real conditions was a success as far as the evaluation of supervisors and the microteachers are concerned. With this in mind, it is recommended that teacher educators should try to incorporate the idea of microteaching in student teaching programme. The above suggestion is not only proposed on account of a successful completion of microteaching experiment but also on account of its inherent academic worth and its economic efficiency. It has been reported by many other investigators that microteaching approach requires one-fifth of the total time required for conventional student teaching approach and moreover, this happens without any loss of quality. If microteachers' reactions are likely to have some generalizability, it can be easily suggested that microteaching will be liked by B.Ed. trainees.

The proposal of introducing microteaching in colleges of education requires rigorous planning and lot of cooperation from the supervisors and administrators. Different variations in the designs meant for implementing the microteaching experiments can be introduced to increase the feasibility of this innovation in colleges of education. Two different schedules have already been suggested above in this chapter.

The above two schedules require lesser amount of planning and lesser efforts for their execution. But their scope of application is restricted. Some more schedules can be suggested (or devised by the supervisors in the colleges of education) for a larger number of B.Ed. trainees. Before accepting a particular schedule for microteaching, it is always advisable to evaluate the situations in terms of its resources and its objectives. Anyhow, one more schedule is being suggested below:

	Section A—Room A			*Section B—Room B*		
Time minutes	*Teach*	*Discussion*	*Planning*	*Teach*	*Discussion*	*Planning*
8	$T_1S_1L_1$	x	x	$t_5s_3M_1$	x	x
16	$T_2S_2L_2$	T_1S_1	x	$t_6s_4M_2$	t_5s_3	x
24	$T_3S_1L_3$	T_2S_2	T_1	$t_7s_3M_3$	t_6s_4	t_5
32	$T_4S_2L_4$	T_3S_1	T_2	$t_8s_4M_4$	t_7s_3	t_6
40	$t_5s_3M_1$	T_4S_2	T_3	$T_1S_1L_1$	t_8s_4	t_7
48	$t_6s_4M_2$	t_5s_3	T_4	$T_2S_2L_2$	T_1S_1	t_8
56	$t_7s_3M_3$	t_6s_4	t_5	$T_3S_1L_3$	T_2S_2	T_1
64	$t_8s_4M_4$	t_7s_3	t_6	$T_4S_2L_4$	T_3S_1	T_2
72		t_8s_4	t_7		T_4S_2	T_3
80			t_8			T_4

Note:—This arrangement can be further extended with other set of eight microteachers.

t and T = Microteachers
s and S = Supervisors
L = lessons of any one method
M = lessons of any other method

Much of the research into microteaching has been concerned primarily with demonstrating the value of the technique particularly as compared with traditional forms of practical teacher training. Such work has been of worth in establishing the format as a growth in education, and as a welcome move towards assessment of performance, actual and potential.

The most important is, the need for development of more accurate means of assessment. More efforts to isolate, define and measure the various component skills in the microsituation are required. What is the amount of transfer effect of microteaching training to later on performance in the actual classrooms? This needs to be clarified.

Microteaching protocol : A wide variety of environments, sequences and timings have been reported in the experiments done abroad but there has been very little attempt at any theoretical justification for particular schemes and even less effort has been devoted to empirical research into these questions. One possible starting point is to regard microteaching as a classroom situation and to look for answers based on an increasing degree of simulation complexity with improving student performance.

Supervision and Modelling : Supervision can vary from none through peer appraisal upto having tutor view of the live and recorded microlesson. The various modes differ enormously in their practical cost and convenience. Research results in this field are ambiguous. It may be very necessary to look for interaction between student and supervisor characteristics. More research is required to develop different types of models and minicourses.

Modelling may not be reliable. We might suppose that if modelling is to be done at all, it should be introduced methodically not on an adhoc basis.

APPENDIX 1

A model microlesson given in simulated conditions on "Micro-Organisms" practising the skill of "Questioning"

Objectives : (1) To develop the skill of questioning in the student teacher.

(2) To make the students aware about the concept of micro-organism.

Schedule :

Teach	Critique	Replanning	Reteach
Minutes (5-6)	Minutes (9-10)	Minutes (15)	Minutes (5-6)
	Recritique		
	Minutes (9-10)		

Tools : (1) Observation sheets.

(2) Tape recorder.

Topic : " Micro-organisms "

Subjects : X Y Z (B.Ed. trainees).

Introduction : Well friends, today, we shall try to discuss something which would be of your interest. I hope you would like to participate activly in this teaching-learning situation. I am giving you different environmental situations and you have to respond to them by answering them.

Situation I : Yesterday, I reached the library—the librarian was absent—somebody told me that she was suffering from cold. Would you tell me the causes of cold?

Student X : May be due to rain or food.

Microteacher : Could any one elaborate the response given by X?

Student Y : Yes Madam, rain and food contain some organisms.

Situation II : Yesterday, when I reached home, I was hungry. I searched for bread in the kitchen but I saw black patches spread over the surface of the bread. Will you tell me, what are those black patches?

Student Z : Madam, that may be due to staleness of bread.........

Microteacher : Well, can you throw light on the reason of black patches?

Student X : Madam, black patches are due to some organisms.

Situation III : You are eager to drink hot coffee and you are going to kitchen to prepare it out of milk. The milk was turned into curd. Why has it happened so? Could you say, something?

Student X : Yes madam, there are small or very minute germs called bacteria, which turn milk into curd.

Microteacher : You have seen these three situations and in each of them, the answers were very much common on germs or some organisms. Well, can you see with your naked eye such organisms?

Student Y : No madam, we look through microscope.

Microteacher : What do you call such organisms?

Student Z : They are called micro-organisms.

After the microlesson, the feedback was given to the microteacher.

(1) The form of questions, starting with 'can' and 'could' should be changed.

(2) In the beginning, convergent questions should be asked.

Then the microteacher replanned the lesson for reteach session considering these suggestions. Reteach was done with another batch of student teachers (4 in number), with the same unit. It was followed by further discussion session.

APPENDIX 2

Evaluation for Questioning

Name of the Supervisor..............

(1) Name of the trainee.......... (2) Sex: Male/Female

(3) Class........ (4) Roll No.........

(5) Method subjects (i) .... (6) Experience....yrs.

(B.Ed. level) (ii) ....

(7) Qualifications........ (8) Age....yrs.....months

(9) Topic............ (10) Teach/Reteach/II reteach

This is an observation sheet for a microlesson given in simulation/real classroom teaching. The observers are requested to evaluate the teaching in terms of categories of questions put by the teacher. Below are given the categories of questions. You put tallies under the appropriate category:

Categories	*Memory*	*Translation*	*Interpretation*	*Application*	*Analysis*	*Synthesis*	*Evaluation*
	1	2	3	4	5	6	7
Total No. of questions							

Comments of the observer, if any:........................

Discussion with microteacher:..............................

....

APPENDIX 3

Evaluation for Reinforcement

Name of the Supervisor.............

(1) Name of the trainee.......... (2) Sex: Male/Female

(3) Class........ (4) Roll No.........

(5) Method subjects. (i) .... (6) Experience:....yrs.
(B.Ed. level) (ii) ....

(7) Qualifications........ (8) Age......years......months

(9) Topic........... (10) Teach/Reteach/II reteach

This is an observation sheet for a microlesson given in simulation/real classroom teaching. The observers are requested to evaluate the teaching for reinforcement by answering the following questions:

(1) When a student answered a question correctly, did the teacher reward him with such words as "fine", "good", "excellent", etc.	Yes/No
(2) What nonverbal reinforcement did the teacher use to encourage his students? Underline your response:	(1) "a smile" (2) "nod of the head" (3) any other
(3) When a student gave an answer that was partially correct, did the teacher give him credit for the correct part?	Yes/No
(4) Did the teacher ever refer to the positive aspects of a student's previous response?	Yes/No

Comments:..

....

Discussion with microteacher:.....................................

....

....

APPENDIX 4

Evaluation for Silence and Nonverbal Cues

Name of the Supervisor.............

(1) Name of the trainee.......... (2) Sex: Male/Female

(3) Class........ (4) Roll No.........

(5) Method subjects: (i) .... (6) Experience....yrs.
(B.Ed. level) (ii) ....

(7) Qualifications.......... (8) Age.....yrs......months

(9) Topic.......... (10) Teach/Reteach/II reteach

This is an observation sheet for a microlesson given in simulation/real classroom teaching. The observers are requested to evaluate the teaching for silence and nonverbal cues by answering the following questions:

(1) Did the teacher allow the students to do most of talking? Yes/No

(2) Did the teacher remain quiet after asking a question, thus allowing the student to think about his answer? Yes/No

(3) Did the teacher communicate with facial expressions, gestures and body movements? Yes/No

(4) Was the teacher able to direct and control the discussion without speaking very often? Yes/No

(5) Was the teacher attentive? Yes/No

(6) Did the teacher seem interested in what the students had to say? Yes/No

(7) Did the teacher make an effort to include as many students as possible in the discussion? Yes/No

---

Comments:..

....

Discussion with microteacher: ....

....

....

APPENDIX 5

Evaluation for Illustration and Use of Examples

Name of the Supervisor..............

(1) Name of the trainee.......... (2) Sex: Male/Female

(3) Class........ (4) Roll No.........

(5) Method subjects (i) .... (6) Experience....yrs.
(B.Ed. level) (ii) ....

(7) Qualifications.......... (8) Age......yrs.......months

(9) Topic............ (10) Teach/Reteach/II reteach

This is an observation sheet for a microlesson given in simulation/real classroom teaching. The observers are requested to evaluate the teaching skill of illustrating and use of examples. You have to put the tallies under each category:

	Categories		
Item	*Most appropriate*	*Appropriate*	*Not appropriate*
Frequency	( )	( )	( )
Simple illustrations	( )	( )	( )
Complicated illustrations	( )	( )	( )

Comments: ....

....

Discussion with microteacher: ....

....

....

APPENDIX 6

Peers' Evaluation Sheet

Name of the Observer............

(1) Name of the trainee.......... (2) Sex: Male/Female

(3) Class........ (4) Roll No.........

(5) Method subjects (i) .... (6) Experience.....yrs
(B.Ed. level) (ii) ....

(7) Qualifications.......... (8) Age.....yrs......months

(9) Topic............ (10) Teach/Reteach/II reteach

This is an observation sheet for evaluating the microteacher who has taught you just now. You may focus your attention on the following skills:

1. Questioning
2. Illustrations
3. Reinforcement
4. Silence and nonverbal cues

Comments:..

....

Discussion of Peers with Microteacher: ....

....

....

APPENDIX 7

Microtopics Selected for Simulated Microteaching Experiment

(1) "Vaso" agitation
(2) Colour perception
(3) Different forms of government
(4) Micro-organisms
(5) Problems of refugees
(6) Olympic games
(7) Perception and sentiments
(8) Place of English in education
(9) The theory of educational psychology
(10) Movement for Bangla Desh
(11) Importance of grammar in languages
(12) Finding mean from ungrouped data.

BIBLIOGRAPHY

Acheson, K. A., "The Effects of Feedback from Television Recording and Three Types of Supervisory Treatment on Selected Teacher Behaviour." Unpublished Doctoral Dissertation, Stanford University, 1964.

Allen, Dwight, W., "Microteaching : A New Framework for In-Service Education." *High School Journal* 49, 355-362, 1962.

Allen, D. W., and Fortune, J. C., "An Analysis of Micro-Teaching : A New Procedure in Teacher Education." In Microteaching : a description, Stanford, Calif. School of Education, Stanford University, Section III, pp. 1-11. 1967.

Allen, D. W., et al., "Teaching Skills for Elementary and Secondary School Teachers." New York, General Learning, 1969.

Allen, D. W. and Ryan, K. A., "Microteaching." Reading, Mass., Addison-Wesley, 1969.

Amidon, E. and Hunter, E., "Improving Teaching : The Analysis of Classroom Verbal Interaction." New York. Holt, Rinehart and Winston, 1966.

Bell, C. G., "Can the Arts of Teaching Be Structured?" *Journal of Home Economics*, 62, 1, 34-39, 1970.

Bloom, B. S., Taxonomy of Educational Objectives, Handbook I : Cognitive Domain." London, Longman Group Ltd., 1956.

Bloom, J. M., 'Videotape and the Vitalization of Teaching." *Journal of Teacher Education*, 20, 311-315, 1969.

Borg, Walter R., *et al.*, "A Microteaching Approach to Teacher Education." New York, Macmillan Educational Services, 1970.

BROWN, G. A., "Microteaching : Innovation in Teacher Education." *Education for Teaching*, 86, 10-15, 1971.

BUCH, M. B., "Innovations in Education." *The Rajasthan Board Journal of Education*, 3, 20-27, 1967.

BUSHNELL, DON., "System Simulation : A New Technology for Education." Paper presented at the American Personnel and Guidance Association Annual Convention, 1962.

CHUDASAMA, R. R., "Trying out of Microteaching Procedure in Student Teaching." Unpublished M. Ed. Dissertation, M. S. University, 1971.

CLAUS, K. E., "Effects of Modelling and Feedback Treatments on the Development of Teachers' Questioning Skills." Technical Report No. 6, Stanford Center for Research and Development in Teaching, School of Education, Stanford University (Mimeo), 1969.

CRUICKSHANK, DONALD R., "Simulation : New Direction in Teacher Education." *Phi-Delta Kappa* 48, 23-29, 1966.

FATTU, N. A., "Simulation Models for Education in Educational Research." Fourth Annual Phi-Delta Kappa Symposium, 1966.

FLANDERS, N. A., "Analysing Teaching Behaviour." California, Addison-Wesley Publishing Company, 1970.

FRITZ, W. B., "An Introduction to Simulation." In Fourth Annual Phi-Delta Kappa Symposium; Simulation Models for Education in Educational Research, 1965.

GALL, M. D., DUNNING, B., and WEATHERSBY, R., "Higher Cognitive Questioning : Minicourse 9: Teachers' Handbook." Far West Laboratory for Educational Research and Development, Macmillan, 1971.

GRIFFITHS, R. The Role of the Tutor in Microteaching Supervision : A Survey of Research Evidence Department of Education, University of Stirling, 1972.

JOHNSON, JAMES, A., "A National Survey of Student Teaching Programms." De-Kalb, Illionis:Northern Illinois University, p. 56, (mimeo) 1968.

JOHNSON, W. D. and KNAUPP, J. E., "Trainee Role Expectations of the Microteaching Supervisor." *Journal of Teacher Education*, 21, 3, 396-401, 1970.

JOSHI, D. C., "A Study of Innovations and Changes in Teachers' Colleges." Unpublished Doctoral Dissertation, Udaipur University, 1972.

KALLENBACH, W. W., "The Effectiveness of Video-taped Practice Teaching Sessions in the Preparation of Elementary Intern teachers." San Jose State College, San Jose, California (Mimeo), 1969.

KALLENBACH, W. W. and GALL, M. D., "Microteaching Versus Conventional Methods in Training Elementary Intern Teachers." *Journal of Educational Research*, 63, 136-141, 1969.

KERSH, B. Y., "The Classroom Simulator." *Journal of Teacher Education*, 13, 1, 109-110, 1962.

MARKER, N. S., "Comparative Study of Microteaching and Conventional Practice Teaching of Pupil Teachers of Geography Method." *Journal of the Gujarat Research Society*, 34, 59-83, 1972.

MARKER, N. S., "A Report on an Experiment in Developing Skills of Classroom Teaching of Student Teachers by Simulation and New Technique of Supervision." *Journal of the Gujarat Research Society*, 35, 62-71, 1973.

MCALEESE, W. R. and UNWIN, D., "A Selected Survey of Microteaching." *Programmed Learning and Educational Technology*, 8, 1, 10-21, 1971.

MCCOLLUM, R. and LA DUE, D., "Microteaching in Teacher Training Programme." *Social Education*, 34, 333-336, 1970.

McINTYRE., DONALD, " Three Approaches to Microteaching : An Experimental Comparison. " Department of Education, University of Stirling, 1971.

MEIER, J. H., " Rationale for and Application of Microtraining to Improve Teaching. " *Journal of Teacher Education*, 19, 147-157, 1968.

MORSE, K. R., KYSILKA, M. L. and DAVIS, O. L., Jr. " Effects of Different Types of Supervisory Feedback on Teacher Candidate's Development of Refocussing Behaviours. " R and D Report Series Number 48. Austin, Texas, The University of Texas, 1970.

ORME, M., " The Effects of Modelling and Feedback Variables on the Acquisition of a Complex Teaching Strategy. " Unpublished Doctoral Dissertation, Stanford University, School of Education, 1966.

PALSANE, M. N. and GHANCHI, D., " Practice Teaching. " *Teacher Education*, 1, 3, 1-37, 1967.

PANGOTRA, N., " A Study of the Effects of Feedback from Different Sources on the Classroom Behaviour of Student Teachers using the Technique of Interaction Analysis. " Unpublished Doctoral Dissertation, M. S. University, 1973.

PECK, R. F. and TUCKER, J. A., " Research on Teacher Education. " In R.M.W. Travers (Ed.), Second Handbook of Research on Teaching, Chicago, Rand McNally and Company, 1973.

PERLBERG, A., " Microteaching. " *International Review of Education*, 18, 4, 545-559, 1972.

RESNICK, L. B. and KISS, L. E., " Discrimination Training and Feedback in Shaping Teacher Behaviour. " Paper Presented at the Annual Meeting of AERA, 1970.

SANDERS, M. M., " Classroom Questions : What kinds ? " New York, Harper and Row, 1966.

SHAH, G. B., "Microteaching without Television." *Nutan Shikshan*, November, 1970.

SINGH, L. P., "Classroom Interaction Analysis, Microteaching and Modification of Classroom Teacher Behaviour." Unpublished Doctoral Dissertation, M. S. University, 1973.

TIWARI, D. D., "An Experiment in Microteaching : A Research Report." Allahabad, Central Pedagogical Institute, 1967.

TUCKMAN, B. W., and OLIVER, W. F., "Effectiveness of Feedback to Teachers as a Function of Source." *Journal of Educational Psychology*, 59, 297-301, 1968.

WARD, B. E., "A Survey of Microteaching in Secondary Education Programmes of all N.C.A.T.E. Accredited Colleges and Universities." Unpublished Doctoral Dissertation, College of Education, University of Nebraska, 1969.

WRAGG, E. C., "The Influence of Feedback on Teachers' Performance." *Educational Research*, 13, 3, 218-221, 1971.

WYNN, RICHARD, "Simulation : Terrible Reality in the Preparation of School Administrators." *Phi Delta Kappa*, 46, 170-173, 1964.

YOUNG, D. A., "A Preliminary Report on the Effectiveness of College Supervision on the Acquisition of Selected Teaching Behaviour in a Microteaching Series." Paper presented to the Annual Conference of the American Educational Research Association (Mimeo), 1970.

YOUNG, J. T., LEE, B. N. and RICHARDS, D. R., "The Effects of Controlled Variables in Microteaching." Department of Communications, Bringham Young University, 1971.

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